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EXAMINER
TUSCAN, M

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ART UNIT	PAPER NUMBER
1813	4

DATE MAILED: 11/10/93

This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

☒ This application has been examined ☒ Responsive to communication filed on July 29, 1993 ☐ This action is made final.

A shortened statutory period for response to this action is set to expire -3- month(s), -0- days from the date of this letter.
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

1. ☒ Notice of References Cited by Examiner, PTO-892.
2. ☒ Notice re Patent Drawing, PTO-948.
3. ☒ Notice of Art Cited by Applicant, PTO-1449.
4. ☐ Notice of Informal Patent Application, Form PTO-152.
5. ☐ Information on How to Effect Drawing Changes, PTO-1474.
6. ☐ _____

Part II SUMMARY OF ACTION

1. ☒ Claims 23-31 are pending in the application.
   Of the above, claims 26-31 are withdrawn from consideration.
2. ☐ Claims _____ have been cancelled.
3. ☐ Claims _____ are allowed.
4. ☒ Claims 23-25 are rejected.
5. ☐ Claims _____ are objected to.
6. ☒ Claims 23-31 are subject to restriction or election requirement.
7. ☐ This application has been filed with informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.
8. ☐ Formal drawings are required in response to this Office action.
9. ☐ The corrected or substitute drawings have been received on _____. Under 37 C.F.R. 1.84 these drawings are ☐ acceptable. ☐ not acceptable (see explanation or Notice re Patent Drawing, PTO-948).
10. ☐ The proposed additional or substitute sheet(s) of drawings, filed on _____ has (have) been ☐ approved by the examiner. ☐ disapproved by the examiner (see explanation).
11. ☐ The proposed drawing correction, filed on _____, has been ☐ approved. ☐ disapproved (see explanation).
12. ☐ Acknowledgment is made of the claim for priority under U.S.C. 119. The certified copy has ☐ been received ☐ not been received ☐ been filed in parent application, serial no. _____; filed on _____.
13. ☐ Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.
14. ☐ Other

EXAMINER'S ACTION

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

Group I. Claims 23-25, drawn to them method of producing antibodies, classified in Class 424, subclass 89.

Group II. Claims 26-28, drawn to antibodies, classified in Class 530, subclass 388.35.

Group III. Claims 29-31, drawn to the method of detection, classified in Class 435, subclass 7.1.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (M.P.E.P. § 806.05(f)). In the instant case the product as claimed can be made by a materially different process, such as the administration of an attenuated virus.

3. Inventions I and III are materially different methods with distinct steps and end-points.

4. Inventions II and III are distinct in that the antibodies of invention II are not required components used in one of the methods steps of invention III.

5. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

6. During a telephone conversation with Michelle Schaffer on October 6, 1993 a provisional election was made without traverse to prosecute the invention of Group I, claims 23-25. Affirmation of this election must be made by applicant in responding to this Office action. Claims 26-31 are withdrawn from further consideration by the Examiner, 37 C.F.R. § 1.142(b), as being drawn to a non-elected invention.

7. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 C.F.R. § 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a diligently-filed petition under 37 C.F.R. § 1.48(b) and by the fee required under 37 C.F.R. § 1.17(h).

8. 35 U.S.C. § 101 reads as follows:

> "Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter or any new and useful improvement thereof, may obtain a patent therefore, subject to the conditions and requirements of this title".

9. Claims 23-25 are rejected under 35 U.S.C. § 101 because the claimed methods lack patentable utility.

The specification fails to provide substantive evidence of a patentable utility for the method of producing antibodies. The specification speculatively claims that the antigens expressed from the J19 clone can be used in a vaccine composition. However, the specification fails to provide in vivo human data that indicates that the claimed method actually induces significant clinical effects. The unpredictability in correlating in vitro results to in vivo effects in the case of HIV infection and disease induction is well known in the art. Furthermore, the lack of an acceptable animal model further prevents the extrapolation of in vitro data to a clinically significant outcome (see Norley et al, p.196, third paragraph). Norley et al (1992) review the current state of the art in the development of protein or peptide based HIV therapeutics and vaccines. Norley et al state that "one of the major problems associated with HIV is that the mechanisms of disease induction are unknown" (p.195, second paragraph). It is well known that during HIV infection anti-HIV immune responses remain very strong, including CTL responses, but that at some unknown point viral replication proceeds and AIDS develops (p.195, second paragraph and page 200, first paragraph). Furthermore, it is well known in the art that vaccines bases on the whole envelope

protein fail to protect chimps against HIV infection (p. 197, first paragraph). Therefore, there is no predictability in determining the clinical significance of inducing antibodies against antigens expressed from the J19 clone. See Ex parte Balzarini 21 USPQ 892 for a discussion on the patentability of chemical compounds for the treatment or prevention of AIDS when there is no direct association between in vivo treatment and in vivo results.

Case law has established that the utility of an invention may not be based on mere assertion, but rather must be definite and in currently available form. See Brenner v Manson, 383 U.S. 519, 148 USPQ 689 (1966). It is well established that a patent may not be granted on a chemical compound unless the data is such as to convince one of ordinary skill in the art that the proposed utility is sufficiently established. See In re Irons, 340 F.2d 924, 144 USPQ 351 (CCPA 1965); Ex parte Krepelka, 231 USPQ 746 (PTO Bd. Pat. Appls. & Interf. 1986); Ex parte Chwang, 231 USPQ 751 (PTO Bd. Pat. Appls & Interf. 1986). Furthermore, when the utility of a chemical compound is directed to humans, the data must generally be clinical. In order to accept animal data, there must exist an art recognized animal model for testing purposes. See In re Hartop, 311 F.2d 249, 135 USPQ 419 (CCPA 1962).

10. The following is a quotation of the first paragraph of 35 U.S.C. § 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The specification is objected to under 35 U.S.C. § 112, first paragraph, as the specification, as originally filed, does not provide support for the invention as now claimed.

As set forth above, the specification speculatively asserts that the expressed antigens can be included in a vaccine. However, the specification does not disclose a method of producing antibodies to a LAV antigen as set forth in the instant claims. Specifically, the specification does not set forth the steps of the claimed method, i.e. the step of raising antibodies against the antigen.

11. Claims 23-25 are rejected under 35 U.S.C. § 112, first paragraph, for the reasons set forth in the objection to the specification.

12. It is noted that the claimed priority documents fail to set forth a method of eliciting antibodies using the antigen(s) encoded by the J19 clone. Accordingly, the effective filing date

of the elected claims is that of the instant application (April 27, 1993).

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

14. Claims 23-25 are rejected under 35 U.S.C. § 102(b) as being anticipated by any one of Robey et al (1986), Rusche et al (1987), Lasky et al (1986), Chanh et al (1986) or Putney et al (1986).

Robey et al disclose a method of producing antibodies to LAV by raising antibodies against gp120 (see p.7024, under Immunization with gp120). See also Fig.3, wherein the reactivity of the induced antibodies is demonstrated by the ability of the antibodies to immunoprecipitate labelled gp120.

Rusche et al disclose a method of producing antibodies against LAV by raising antibodies against recombinant gp160 (see p.6926, third full paragraph), These antibodies effectively neutralized in vivo viral infection (see Fig.5).

Lasky et al disclose a method of producing antibodies against LAV by raising antibodies against a truncated form of the envelope protein (see p.211, top of page). In this case, goats

are immunized with the protein formulated with Freund's complete adjuvant.

Chanh et al disclose a method of producing antibodies against LAV by raising antibodies against of a envelope peptide (see p.3069, last paragraph).

Putney et al disclose a method of producing antibodies against LAV by raising antibodies against the carboxyl-terminal 180 amino acids of gp120 (see p.1393, middle column, first full paragraph).

As the specification teaches that the DNA fragment of clone J19 with the restriction sites set forth in claims 23-25 encodes the envelope protein, the limitations of the above claims are fully met by any one of these prior art references.

The initialled references submitted on form PTO-1449 have been considered by the Examiner. A copy of the initialled form is attached.

Papers related to this application may be submitted to Group 180 by facsimile transmission. Papers should be faxed to Group 180 via the PTO Fax Center located in Crystal Mall 1. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The CM1 Fax Center Telephone Numbers are (703) 308-4227 and (703) 305-3014.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Tuscan whose telephone number is (703) 308-4240.

CHRISTINE M. NUCKER
SUPERVISORY PATENT EXAMINER
GROUP 180

Michael S. Tuscan Ph.D.
October 29, 1993